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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,594	01/26/2004	Kenichi Aota	04970/0200827-US0	1744

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EXAMINER

GARCIA, ERNESTO

ART UNIT

PAPER NUMBER

3679

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/765,594

Applicant(s)

AOTA ET AL.

Examiner

Ernesto Garcia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 10-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/24/2006 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "33" has been used to designate both an edge portion without a recessed portion 127 (Figs. 1, 2, 3a, 4 and 8) and an edge portion with a recessed portion 127 (Figures 3b and 3c).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "57" has been used to designate both inwardly directed projections (Figure 1, 3a, 5) and outwardly directed projections (Fig. 3c).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "56" has been used to designate thrice a supported portion with a first configuration (Figure 1 and 3a; inwardly directed projections), a supported portion with a second configuration (Figure 3b; outwardly directed projections), and a supported portion with a third configuration (Figure 3c; both inwardly and outwardly directed projections).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "2" has been used to designate both a shaft joint body with 90-degree spaced apart recesses 27 (Figure 1 and 3a; note the cross-section shows two recesses) and a shaft joint body with a different configuration (Figure 3c; in cross-section only one recess is shown).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended". If a drawing

figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 1, 4, 6-8, 10, 13, and 15-17 are objected to because of the following informalities:

regarding claims 1 and 10, the recitation "surfaces" in claim 1, line 13, and claim 10, line 12, should be --a surface--;

regarding claims 4, 6-8, 13, and 15-17, "of" in line 2 should be --on--; and,

regarding claims 1 and 10, the colon in line 2 should be a semicolon.

Appropriate correction is required. For purposes of examining the instant invention, the examiner has assumed these corrections have been made.

Claim Rejections - 35 USC § 112

Claim 10-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 10, the recitation that “both the shaft joint body and the locking body have a recessed portion into which the projection is fitted” in lines 13-14 makes unclear how does just one projection fit in both recesses at the same time.

Regarding claims 11-18, the claims depend from claim 10 and therefore are indefinite.

Claim Rejections - 35 USC § 103

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aota et al., 6,474,898, in view of Sekine et al., 6,155,739.

Regarding claim 1, Aota et al. disclose, in Figure 6B, a coupling structure comprising a shaft body **5**, a shaft joint **3**, and a coupling shaft **17**. The shaft joint **3** includes an engagement groove **A4** (see marked-up attachment), a shaft body **5**, a locking body **55**, a regulating tongue **77**, a plate body **66**, and a supported portion **A8**.

The shaft body **5** engages with the engagement groove **A4**. The shaft body **5** has two bores facing the engagement groove **A4**. The locking body **55** is press-fitted into one of the bores. The coupling shaft **17** is locked with the locking body **55**. The plate body **66** has a curved portion **A9**. The supported portion **A8** extends from the curved portion **A9** of the plate body **66**. The supported portion **A8** is superposed between a surface of the locking body **55** and a surface of the shaft body **5**. However, Aota et al. fail to disclose the supported portion **A8** having a projection, and the shaft body **5** or the locking body **55** having a recessed portion into which the projection is fitted.

Sekine et al. teach, in Figure 9, a supported portion having a projection **205d** to bring into contact with a coupling shaft. Sekine et al. also teach a shaft body or the locking body **204** having a recessed portion **204a** into which the projection **205d** is fitted to form a so-called escape for avoiding contact with the projection when the coupling shaft is fastened up (col. 8, lines 56-61). Therefore, as taught by Sekine et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the projection on the supported portion to bring into contact with a coupling shaft, and it would have been obvious to one of ordinary skill in the art at the time the invention was made place on the shaft body or the locking body the recessed portion into which the projection is fitted to avoid contact with the projection when the coupling shaft is fastened up.

Regarding claim 2, Aota et al. teach in Figure 3 a projection **11** having hardness higher than hardness of a shaft joint body **1** or a locking body **21** (see Aota et al., col. 2, lines 52-54). Note, the projection is made of spring steel.

Regarding claim 3, Aota et al., as modified, are silent on whether the spring steel has hardness higher than the hardness of the shaft joint body or the locking body. Sekine et al. teach, in column 17 in lines 9-14, that the spring steel has hardness higher than the hardness (HRC40) of a shaft joint body or a locking body. Note, conventional shaft joint bodies usually use the HR B scale as the shaft joint bodies are made of carbon steel or aluminum alloys. Therefore, as taught by Sekine et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the spring steel have hardness higher than the shaft joint body or the locking body for safety reasons.

Regarding claims 4 and 6-8, Sekine et al. teach the projection **205d** is formed by providing a through bore of the supported portion with kerfs and bending a partial piece between the kerfs.

Regarding claim 5, as best understood, Aota et al., as modified above, are silent concerning whether the projection is formed of a material with hardness higher than the hardness of the shaft joint body or the locking body. Sekine et al. teach, in column 17 in lines 9-14, a projection formed of a material with a hardness higher (HRC40) than the

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hardness of a shaft joint body or a locking body. Note, conventional shaft joint bodies usually use the HR B scale as the shaft joint bodies are made of carbon steel or aluminum alloys. Therefore, as taught by Sekine et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the spring steel have hardness higher of the shaft joint body or the locking body for safety reasons.

Regarding claim 9, as best understood, Aota et al., as modified above, disclose the projection is made of spring steel as taught by Aota et al. However, Aota et al. is silent whether the spring steel has hardness higher than the hardness of the shaft joint body **23** or the locking body **32** and a surface treatment. Sekine et al. teach, in column 17 in lines 9-14, that the spring steel has hardness higher than the hardness (HRC40) of a shaft joint body or a locking body. Note, conventional shaft joint bodies usually use the HR B scale as the shaft joint bodies are made of carbon steel or aluminum alloys. Further, applicant should note that hardened steel is well known to be surface treated as by heating the material and quenching the material in oil or water. Therefore, as taught by Sekine et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the spring steel have hardness higher of the shaft joint body or the locking body by applying a surface treatment for safety reasons.

Allowable Subject Matter

Claims 10-18 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter:

regarding claim 10, the prior art of record does not disclose or suggest a coupling structure comprising both a shaft joint body and the locking body each having a recessed portion into which a respective projection of a supported portion is fitted; there is no motivation absent applicant's own disclosure to modify Sekine et al. because Aota et al., as modified by Sekine et al., teach the recessed portion on the locking body only; regarding claims 11-18, these claims depend from claim 10.

Response to Arguments

Applicants' arguments with respect to claims 1-9 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-272-

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7083. The examiner can normally be reached from 9:30-5:30. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached at 571-272-7087.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

29.



E.G.

March 28, 2006

Attachment: one marked-up page of Aota et al., 6,474,898.

DANIEL P. STODOLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Aota et al., 6,474,898

Fig. 6B

